



X-Plain™

Parkinson's Disease

Reference Summary

Parkinson's Disease is a common disease that affects muscle control. Parkinson's Disease affects about half a million people every year.

The symptoms of Parkinson's Disease can be treated very successfully.

This reference summary will help you understand Parkinson's Disease and the various treatment options.

Anatomy

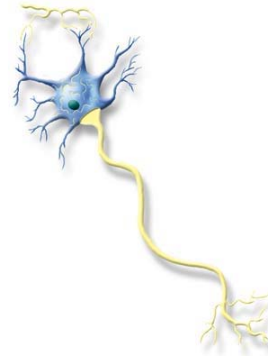
The brain is the control center of the body. The brain controls

- movements
- sensations
- feelings
- our personality



The right side of the brain controls the left side of the body, and the left side of the brain con-

trols the right side of the body. The brain cells that make the brain function are called "neurons." Unlike most other cells in the body, if neurons die, new neurons do not develop. Special chemicals help neurons talk and communicate with each other. These chemicals are called "neurotransmitters." When neurotransmitters are balanced, the brain functions smoothly.



"Dopamine" and "acetylcholine" are the names of 2 different neurotransmitters in the brain. These particular neurotransmitters, among other things, control our movements. A small area in the base of the brain called the "substantia nigra," or the "black substance," makes dopamine.

The causes of Parkinson's Disease are still unknown. However, we do know that neurons in the substantia nigra gradually die off and that causes less dopamine to be made. With less dopamine than normal, there is an imbalance between dopamine and acetylcholine.

The symptoms of Parkinson's Disease are a result of this imbalance.

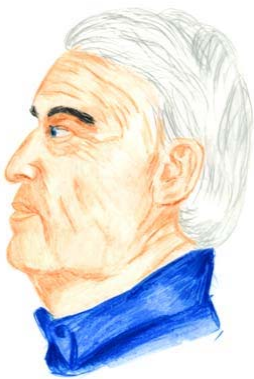
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Symptoms

Parkinson's Disease usually affects people when they are around the age of 60. It affects people differently; some people hardly notice symptoms and others have a lot of symptoms. The first symptom of Parkinson's Disease is usually tremor, or shaking. Tremors are often noticed in the hands or arms, but they also occur in the legs, feet, or jaw. Typically, tremors happen when the person is at rest and improve when that part of the body is used. Tremors usually completely stop when the patient is asleep. Rigidity, or muscle stiffness, usually affects the neck, shoulders, and arms.

It can cause the person to have trouble bending their legs or arms. Over time, rigidity can cause muscle aches. In more advanced stages, rigidity can result in a stooped posture.

Parkinson's Disease can cause balance problems, which affect the way a person walks and may cause them to fall down a lot. Bradykinesia, or slow movement, causes Parkinson's patients to shuffle their feet while walking and it takes extra effort to start moving. Unconscious movements, such as blinking or facial expressions, may be slowed. Slow facial expressions can lead to a condition called "poker face," where the patient does not show any emotions in their facial expressions.



After it progresses, bradykinesia can also cause inability to swallow. When this happens,

the patient may experience drooling. At its worst, bradykinesia can cause "freezing," which is when the patient feels unable to move. Freezing episodes can prevent the patient from getting out of bed or eating by themselves.

Additional symptoms that are less likely include:

- depression
- personality changes
- dementia
- sleep disturbances
- speech impairments
- sexual difficulties

Treatment

Parkinson's Disease is mainly treated with oral medications. When this fails, surgery may be needed to help some of the symptoms. The goal of treatment for Parkinson's Disease is to restore the balance between dopamine and acetylcholine in the brain. A very common Parkinson's medication is called levodopa, or L-dopa. It is a chemical that the brain needs in order to make dopamine. Special chemicals in the blood called enzymes destroy L-dopa quickly. To increase its effectiveness, L-dopa is mixed with another compound that prevents enzymes from destroying it. This mixture is found in Sinemet™. Medications that copy the effect of dopamine in the brain are also used. These include bromocriptine, lisuride, and pergoline. Medications that counteract the effects of acetylcholine may be used to compensate for the lack of dopamine. These include Artane™ and Cogentin™. Medical treatment is usually very successful at first. However, over time, dosages and combinations of medications may need to be changed to get the best results.

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Unfortunately, medications for Parkinson's Disease do have side effects, including:

- nausea
- depression
- dry mouth
- blurred vision

Abnormal movements known as “dyskinesia” may occur after the patient has been taking medications for a while. These movements are jerky and uncontrolled and usually affect the face or arms. Sudden change between good mobility and almost no mobility may also occur due to medication, as well as the advancing disease. This is called on-off phenomena. Physical and occupational therapy can improve posture, ability to walk, and fine movement skills. It may be necessary to change medication combinations or dosage to improve symptoms. If medications do not help, surgery to either destroy or stimulate deep parts of the brain may be an option. The patient should NEVER stop or change medications without discussing it with their doctor; this is very dangerous.

It is important to tell the doctor about any symptom changes or side effects. It is helpful to keep a log including what time medication is taken and any symptom changes. A log can help the doctor to adjust medications.

Summary

Parkinson's Disease is a common condition. Treatment options are available and usually successful. The success of the treatment mostly depends on clear communication between the patient and his or her doctor.

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